Strategies for Transferring Mixtures of Organic Contaminants from Aquatic Environments into Bioassays - DTU Orbit (09/11/2017)

Strategies for Transferring Mixtures of Organic Contaminants from Aquatic Environments into Bioassays

Mixtures of organic contaminants are ubiquitous in the environment. Depending on their persistence and physicochemical properties, individual chemicals that make up the mixture partition and distribute within the environment and might then jointly elicit toxicological effects. For the assessment and monitoring of such mixtures, a variety of cell-based in vitro and low-complexity in vivo bioassays based on algae, daphnids or fish embryos are available. A very important and sometimes unrecognized challenge is how to combine sampling, extraction and dosing to transfer the mixtures from the environment into bioassays, while conserving (or re-establishing) their chemical composition at adjustable levels for concentration-effect assessment. This article outlines various strategies for quantifiable transfer from environmental samples including water, sediment, and biota into bioassays using total extraction or polymer-based passive sampling combined with either solvent spiking or passive dosing.

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